

At page 3, line 20, please replace the current paragraph with this paragraph:

“FIGURE 2 depicts a fully articulated hub assembly 20b that includes a pre-loaded, opposed bearing assembly 30b that maintains a force couple bearing pre-load path entirely within the bearing assembly 30b. The hub assembly 20b includes a plurality of rotor assemblies 24 radially attached to a hub center body 22. The articulated hub assembly 20b is designed to allow and to control the flap, pitch and lead-lag motion of an aircraft rotor.”

At page 3, line 26, please replace the current paragraph with this paragraph:

“In a presently preferred embodiment, the rotor assembly 24 includes a tie bar 26. However, any other rotor attachment structure or assembly is considered within the scope of the invention. The tie bar 26 is a substantially cylindrical shaped element having a pair of radially opposed journals 28 at an end. Each journal 28 is designed to receive the bearing assembly 30b. The bearing assembly 30 extends over the journal 28 attaching itself to the journal 28. The tie bar 26 and bearing assembly 30b combination attach the rotor assembly 24 to the hub center body 22.”

At page 3, line 33, please replace the current paragraph with this paragraph:

“The bearing assembly 30b includes an inboard bearing element 32 and an outboard bearing element 34 contained within an outer housing 42b. An outer surface of the outer housing 42b is configured to attach the bearing assembly 30b to another structure, for example, the main rotor hub 22. In a presently preferred embodiment, the outer housing 42b includes two pair of radially extending bearing flanges 36 configured to mate with a hub yolk 38 of the hub center body 22. However, any other structure or arrangement for attaching the bearing assembly to the rotor hub located on the outer housing 42b is considered within the scope of this invention including, to provide a pair of non-limiting examples, an outer housing having a single pair of flange projections or an outer housing molded to fit a shape of the hub. A plurality of flange bores 60 align with yolk bores 40 allowing fasteners (not shown) to rigidly attach the structures.”

At page 4, line 9, please replace the current paragraph with this paragraph:

“FIGURE 3 depicts an isolated view of the hub assembly 20b of the instant invention. The tie bar 26 is attached to the hub assembly 20b via a pair of bearing assemblies 30b attached




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to the hub yolk 22 by attachment lugs 58. The bearing assemblies 30b extend over and contact each respective journal 28. Each bearing assembly 30b includes a mated set of opposed, taper conical bearing elements, 32 and 34, enclosed within an outer housing 42b. When preloaded in the axial direction, the opposed bearing assembly 30b limits the force couple to each individual bearing assembly 30b. According to the invention, the force couple is not passed through the hub center body 22. The force couple yields a bearing pre-load path 43b that remains entirely within each respective bearing assembly 30b.”

At page 4, line 18, please replace the current paragraph with this paragraph:

“FIGURE 4 depicts an exploded view of the bearing assembly 30b. The bearing assembly 30b includes an outboard bearing element 34 and an inboard bearing element 32 disposed within an outer housing 42b. The outer housing 42b includes a first section 45 and a second section 47.”

At page 4, line 22, please replace the current paragraph with this paragraph:

“The first section 45 includes a pair of radially extending flange sections 36. The flange sections 36 are configured to align with the hub yolk 38 (FIG. 1). An inner surface of the first section 45 is shaped to receive the second section 47 and, thus, the inboard bearing element 32. More specifically, an outer surface of the outboard bearing element 34 engages an elastomeric bearing element 54 which, in turn is bonded to a race 61 formed in an inner surface of the outer housing 42b in the first section 45. The bonding method is suitably any commonly known bonding method used in the art.”

At page 4, line 28, please replace the current paragraph with this paragraph:

“The composition of the elastomeric element 54 can be any of the commonly employed elastomeric compositions, and is variable based upon the loading requirements of the employment environment. For example, an elastomeric element with a plurality of metal laminates is considered within the scope of this invention.”




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At page 4, line 33, please replace the current paragraph with this paragraph:

“Positioned on an inner surface of the second section 47 is a race 62 for receiving the elastomeric element 57 which receives the inboard bearing element 32. The race 62 includes a distal section 63 and a proximal section 65. An outer edge of the race 62 is tapered in the direction of the inner bearing element 32. The inner surface of the proximal section 65 forms an axial bore 44 therethrough. The bore 44 is sized to receive the journal 28 through an open end 55 and extends into the distal section 63. The axial bore 44 terminates at an inner race closed end plate 53 located in the distal section 63. ”

At page 5, line 6, please delete the current paragraph.

At page 5, line 13, please replace the current paragraph with this paragraph:

“The closed end plate 53 has a plurality of aligned bores extending therethrough. A tie bar attachment bore 46 is centrally disposed through each to receive a tie bar attachment lug (not shown). The tie bar attachment lug maintains the bearing assembly’s 30b connection with the tie bar 26. Further, a plurality of coupler bores (not shown) disposed through the respective surfaces. Each coupler bore receives a coupler lug 49 (FIG. 6) to forcibly join the outer housing 42b and thereby maintain the spatial integrity between the inboard and outboard bearing elements. It will be appreciated that the coupler bores are positioned so as not to interfere with the insertion of the journals into the bearing assemblies 30b. Further, a plurality of dowel bores extend through the closed end plate 63, with each bore receiving alignment dowels (not shown) extending from the journal end 29 (FIG. 1).”

At page 5, line 21, please replace the current paragraph with this paragraph:

“FIGURE 5 depicts an assembled view of the bearing assembly 30b. The inboard bearing element 32 and the outboard bearing element 34 are coupled between the respective elements of the outer housing 42b. Consequently, the outer housing 42 encompasses both the inboard bearing element and the outboard bearing in a single unitary assembly.”




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At page 5, line 29, please replace the current paragraph with this paragraph:

“FIGURE 6 depicts the assembled ~~flap~~ bearing assembly 30. The bearing assembly includes an outer housing 42b surrounding the inner and outer bearing elements 32 and 34 (FIGS. 4 and 5). The outboard bearing assembly 34 is pressure fit into the inboard bearing element 32 and then bonded between the outer race of the outboard baring 66 and an inner surface of the inboard bearing.”

At page 6, line 12, please replace the current paragraph with this paragraph:

“FIGURES 7 and 8 depict an isolated view of the opposed conical elastomeric bearing assemblies with and without pre-loading, FIG. 7, and with pre-loading, FIG. 8. A bearing gap 82 is located between the respective inboard and outboard bearing elements, 32 and 34 respectfully, prior to any axial pre-loading. As the axial pre-load is applied the bearing elements, 32 and 34, are brought together. The elastomeric bearing elements 54 and 57 engage one another and any space, or bearing gap 82, between the bearing elements, 32 and 34 is removed. The bearing elements, 32 and 34, combine within the bearing assembly 30b to carry the flap-wise motion of the rotor assembly 24 (FIG. 2).”



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